



# **AMIC A9245-D**

## **UHF RFID Reader**

### **User Manual**

**Rev 1.2**

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AMIC Technology Corporation.  
No.2, Li-Hsin 6<sup>th</sup> Road, SBIP, 300 Hsinchu, Taiwan, R.O.C  
TEL: 886-3-5679966  
FAX: 886-3-5679977

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## **FCC INFORMATION**

The Federal Communication Commission Radio Frequency Interference Statement includes the following paragraph:

The equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

User should not modify or change this equipment without written approval from AMIC Communication Co. Modification could void authority to use this equipment.

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To comply with the FCC RF exposure compliance requirements, this device and its antenna must not be co-located or operating to conjunction with any other antenna or transmitter.

## 1. Introduction

Thank you for purchasing AMIC A9245-D UHF RFID readers. A9245-D UHF RFID readers are designed to be compliant with EPC Global Gen2 specifications. They are easy to use and simple installations. These readers are equipped with standard RS-232 host interface, and come with GPIO for external device controls.

## 2. Product Contents

Before starting using the A9245-D RFID reader, first please check that the package contains the following items:

- One A9245-D UHF RFID reader.
- One CD-ROM containing Demo Utility Software.
- One CD-ROM containing SDK library.
- One 110/240 VAC to +5VDC power supply. Different types of power supplied might be used for different countries / regions.
- One RS-232 cable which DB9-female to DB9-female.

**Note:** Only the antennas listed on page 3 can be used with A9245-D. Using any other antennas might cause damage to A9245-D RFID reader, void product warranty, violate associated government regulations, and void user's authority to operate this equipment.

## 2.1. Installation Requirements

AMIC A9245-D requires the following minimum system environment for proper operation:

### Minimum System Requirement:

#### PC

- Processor: Pentium 1.7GHz or faster
- Memory: 256MB RAM
- Interface: One RS-232 compliant port
- Hard Disk Space: 10MB of free disk space
- Operation system:
  - Windows 2000
  - Windows XP

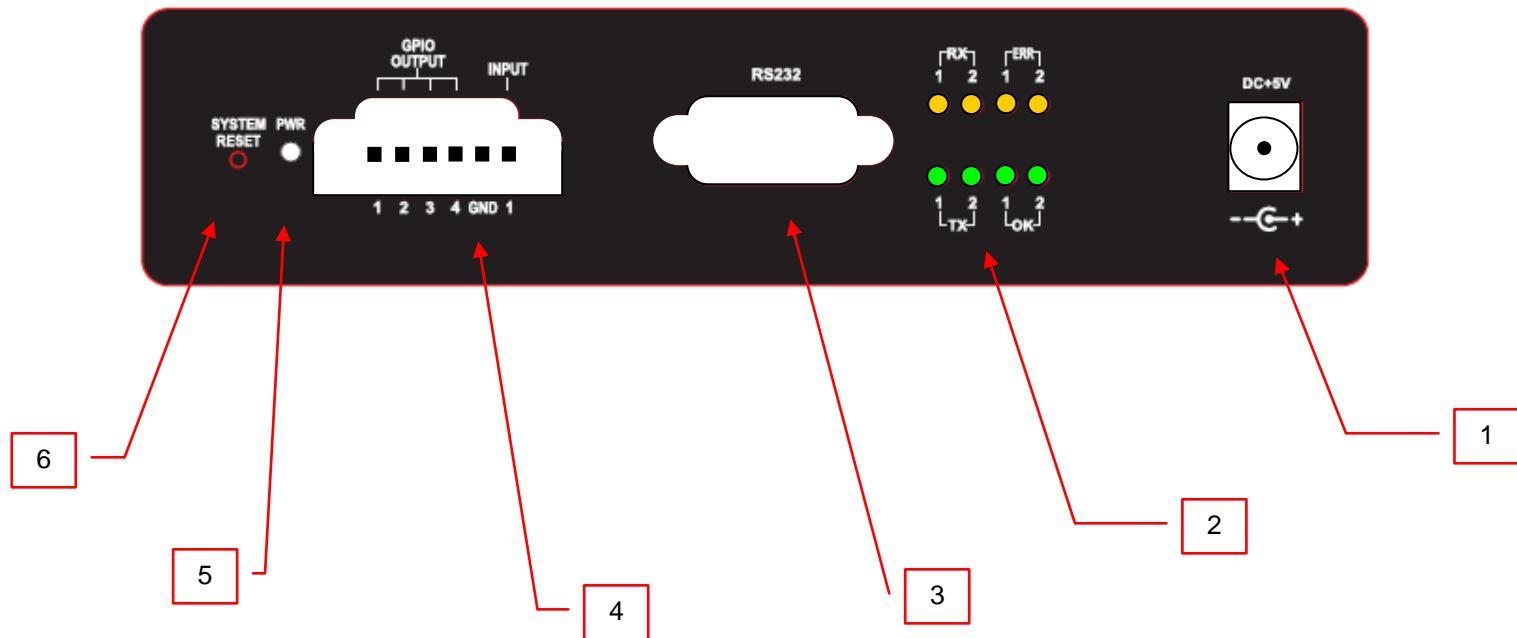
### Reader Antenna (optional equipment)

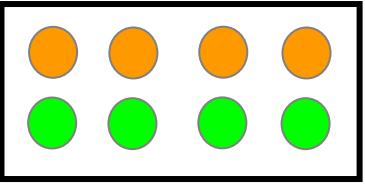
Part number	Antenna Gain	Connector type	Polarization	Cable Length	Reader RF Power Setting
A9295-A-0K	12.0 dBi	N-Female	vertical linear	5.0 m	17 dBm
A9295-A-0J	5.0 dBi	SMA male	circular	1.2 m	21 dBm
A9235-A002-NET	8dBi	SMA male	circular	1.2 m	21dBm

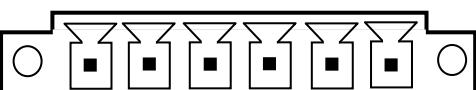
Only antenna listed in the above table should be used. Using any other antennas might cause damage to A9245-D RFID reader, void product warranty, violate associated government regulations, and void user's authority to operate this equipment.



### 3. Nomenclature



<i>Item</i>	<i>Name</i>	<i>Description</i>																											
1	DC Power Jack	The DC power input is +5V. An UL approved 110 / 240VAC to +5VDC power adapter capable of supplying at least 6A current should be used.																											
2	Status LED Indicators	 <table border="1"> <thead> <tr> <th><b>LED</b></th> <th><b>Color</b></th> <th><b>Definition</b></th> </tr> </thead> <tbody> <tr> <td>TX1</td> <td>Green</td> <td>RS232 interface transmitting data to antenna port 1</td> </tr> <tr> <td>RX1</td> <td>Yellow</td> <td>RS232 interface receiving data from antenna port 1</td> </tr> <tr> <td>TX2</td> <td>Green</td> <td>RS232 interface transmitting data to antenna port 1</td> </tr> <tr> <td>RX2</td> <td>Yellow</td> <td>RS232 interface receiving data from antenna port 1</td> </tr> <tr> <td>ERR 1</td> <td>Yellow</td> <td>Command for antenna port 1 failed</td> </tr> <tr> <td>OK 1</td> <td>Green</td> <td>Command for antenna port 1 executed successfully</td> </tr> <tr> <td>ERR 2</td> <td>Yellow</td> <td>Command for antenna port 2 failed</td> </tr> <tr> <td>OK 2</td> <td>Green</td> <td>Command for antenna port 2 executed successfully</td> </tr> </tbody> </table>	<b>LED</b>	<b>Color</b>	<b>Definition</b>	TX1	Green	RS232 interface transmitting data to antenna port 1	RX1	Yellow	RS232 interface receiving data from antenna port 1	TX2	Green	RS232 interface transmitting data to antenna port 1	RX2	Yellow	RS232 interface receiving data from antenna port 1	ERR 1	Yellow	Command for antenna port 1 failed	OK 1	Green	Command for antenna port 1 executed successfully	ERR 2	Yellow	Command for antenna port 2 failed	OK 2	Green	Command for antenna port 2 executed successfully
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<b>Item</b>	<b>Name</b>	<b>Description</b>
<b>3</b>	RS-232 Host Interface Connector	DB-9 male receptacle for host PC communication.
		<b>Pin No.</b> <b>Signal</b>
		2 RS-232 TX
		3 RS-232 RX
		5 Ground
<b>4</b>	GPIO Connector	All others Reserved for future usage
		 Signal Pin 1 2 3 4 5 6
		<b>Pin No.</b> <b>Signal</b>
		1 ~ 4 Auxiliary digital output ports 1 through 4 (DC +5V / 0V)
		5 Ground
<b>5</b>	Power LED	When power to the unit is on, the red LED will light.
<b>6</b>	System Reset Button	When the reset button is pressed, A9245-D will perform hardware system re-boot. Reader unit will return to power on default state.

## 4. Connect to A9245-D UHF RFID Readers

**Step 1:** Connect antenna to the reader.

**Step 2:** Connect RS-232 cable to the reader and the host PC.

**Step 3:** Plug in the power cord into the DC power jack.

**Step 4:** Plug in power supply's power cord into AC power source.

**Step 5:** Launch the demo utility software included on the Demo Utility CD. For details of the demo utility please see demo utility user guide on the CD-ROM. To develop customized UHF RFID reader software, please see information on the SDK CD-ROM for detail.

**Warning:** Antenna should be connected before connecting power to the DC jack to avoid any potential damage to the reader unit. RFID reader antenna should NOT be connected / disconnected when power is supplied to the reader unit. Failure to follow this instruction will void the product warranty.

## Professional Installation Guide

### Installation with FCC Approval

**(1) This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.**

**(2) Electrical connection, commissioning, measurement, maintenance, and calibration work on the unit is to be performed only by electrical specialists or persons with equivalent training.**

**(3) In countries or geographical regions where FCC approval is required, AMIC A9245-D RFID reader may only be operated using the antenna supplied.**

**(4) Changes or modifications not expressly authorized by the relevant approval body may result in revocation of the user's operating permission.**

**(5) A SMA female connector is provided on the reader for connecting the external antenna. The maximum tightening torque for the SMA connector is 0.4 Nm. Higher tightening torque can damage the connector and the reader)**

## 7. Revision History

Revision	Date	Description	By
1.0	12/05/2008	Initial creation	H. Yu
1.1	05/21/2010	Addition of Professional Installation Guide	P. Liao.
1.2	06/30/2010	Added antenna selection table and remark	P. Liao